

## STEVEN MICHAEL McGEE, Ph.D.

Center for Educational Technologies  
Wheeling Jesuit University  
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### EDUCATION

Ph.D. in Learning Sciences, Northwestern University, Evanston, Illinois, 1996.

*Designing Curricula Based On Science Communities of Practice* (Advisor: Roy D. Pea, Ph.D.)

M.B.A., Wheeling Jesuit University, Wheeling, West Virginia, 2000 (4.0 GPA)

Russell E. Younkens Award

B.S. in Education, Northwestern University, Evanston, Illinois, 1988.

Concentration in Computer Science and Child Development

### PRODUCTS

The following chronological list represents the products I have worked on during my career. Each entry lists the product title, grade level, brief description, and my role on the project.

Northwestern University	<u>OverTens</u> , elementary, teaches arithmetic strategies, undergraduate thesis
Addison-Wesley	<u>Information Laboratory</u> , middle school to high school, hypermedia databases on a variety of topics, Quality Assurance
	<u>ChemCalc</u> , high school, teaches chemical equation balancing, Project Manager
Inview/Sunburst	<u>Field Trip to the Rainforest</u> , elementary, teaches about the ecology of the rainforest, Director of Research and Development
	<u>Field Trip into the Sea</u> , elementary, teaches about the ecology of tidewaters, Director of Research and Development
Northwestern University	<u>Broadcast News</u> , high school, teaches current events by having students produce a news program, Instructional Designer
	<u>Road Trip</u> , middle school, teaches geography by having students take simulated road trips, Instructional Designer
	<u>CoVis Project</u> , high school, suite of science tools to support project-based science, Instructional Designer
CET	<u>BioBLAST</u> , high school, teaches biology systems by having students design the life support system for a lunar base, Assessment Specialist
	<u>Astronomy Village: Investigating the Solar System</u> , middle school, supports investigation of the search for life in the solar system and planetary processes, Project Manager
	<u>e-Mission: Montserrat</u> , middle school, distance learning mission that teaches earth systems science, Project Manager
	<u>Journey to El Yunque</u> , middle school, bilingual program that teaches ecology through analysis of forest recovery after Hurricane Georges in Puerto Rico, Project Manager
	<u>Foundations of Freedom</u> , high school, teaches the history of the U.S. Constitution, Assessment Specialist

Modeling Power Generation, high school, lessons on the physics and economics of power generation, Project Manager.

The Learning Partnership    Learning Monitor, high school, online assessment tool for measuring complex learning in science, Project Manager

## RESEARCH GRANTS

- 2003-2008      National Institutes of Health Science Education Partnership Award, *Partnership for Research & Education in Plants*, evaluation subcontract with the Fralin Biotechnology Center at Virginia Tech. Funds Requested: \$250,000.
- 2003-2006      NSF Instructional Materials Development, *Project-Based Inquiry Middle School Science Curriculum*, subcontract with Georgia Tech. Funds Granted: \$200,000.
- 2002-2005      NSF Instructional Materials Development, *Journey to El Yunque: Studying the Effects of Hurricane Georges* (with Steven Croft, Ph.D. and Jess Zimmerman, Ph.D.). Funds Granted: \$499,778.
- 2002-2004      Department of Energy, EPSCoR program, *Modeling Power Generation*, subcontract with West Virginia University. Funds Granted: \$13,500.
- 2002            NSF Small Business Innovation Research Grant Program (Phase I), *Assessing Complex Learning Outcomes through Web-based Classroom Assessment Services*. Funds Granted: \$100,000.
- 2001-2003      Dept of Education Learning Anywhere, Anytime Program. *A Model for Competency-Based Distance Assessment*, evaluation subcontract with Jesuit Distance Education Network. Funds Granted: \$100,000.
- 2000-2001      Challenger Learning Center at Wheeling Jesuit University. *Development of e-Mission: Montserrat* (with Bruce Howard, Ph.D.). Funds Granted: \$105,000
- 1999-2004      Lockheed Martin Educational Foundation, *Evaluation of the Earth System Science Educational Alliance* (with Robert Myers, Ph.D.). Funds Granted: \$250,000.
- 1999-2000      NSF Instructional Materials Development, *Investigating the Educational Potential of a Case Study of Regrowth in El Yunque Rainforest* (with Steven Croft, Ph.D.). Funds Granted: \$80,380.
- 1998-2000      NSF Instructional Materials Development, *Authentic Assessment in Astronomy*. Funds Granted: \$269,300.
- 1998-1999      NASA Earth Science Division, *Evaluation of Studying Earth's Environment from Space*, subcontract with Old Dominion University. Funds Granted: \$14,000.
- 1997-2000      NSF Instructional Materials Development, *Astronomy Village: Investigating the Solar System* (with Steven Croft, Ph.D. and Stephen Pompea, Ph.D.). Funds Granted: \$979,616
- 1997-1998      NASA Education Division, *Challenges in Applied Mathematics and Physics (Project CHAMP)*. Funds Granted: \$300,000
- 2003-2005      NSF Small Business Innovation Research Grant Program (Phase II), *Assessing Authentic Science Outcomes Using the Learning Monitor*. Funds Requested: \$500,000. (unfunded – 2003)
- NSF International Program, *Assessing The Structure Of Student Understanding In An Information Technology Environment* (with Bruce Howard, Ph.D.). Funds requested: \$53,000 (unfunded - 2000).
- NSF Research on Learning Environments, *Use of Advanced Computer Technologies to Assess and Improve Students' Adaptive Learning Abilities and Problem-Solving Proficiency* (with Bruce Howard, Ph.D.). Funds Requested: \$404,804 (unfunded - 2000).

NSF Interagency Education Research Initiative, *Investigating Complex Science Learning Outcomes from Astronomy Village* (with Bruce Howard, Ph.D.). Funds Requested: \$782,234 (unfunded – 2000).

NSF Interagency Education Research Initiative, *The Impact of Asynchronous Online Environments on Teaching Practices*. (with Robert Myers, Ph.D.). Funds Requested: \$273, 557 (unfunded - 1999).

NSF Knowledge and Distributed Intelligence, *Intelligent Scaffolding for Learning Scientific Inquiry* (with Bruce Howard, Ph.D. and Steven Croft, Ph.D.). Funds Requested: \$1,224,223 (unfunded - 1998)

NSF Research in Education, Policy, and Practice, *Strategic Compromises and Authenticity in the Development of Educational Materials* [with Steven Croft, Ph.D. and Douglas Gordin, Ph.D.). (unfunded – 1998)

McDonnell Foundation Cognitive Studies in Educational Practice, *Project Spectra* (with Steven Croft, Ph.D.). (unfunded – 1997; 1998)

NSF Research in Education, Policy, and Practice, *Designing Instruction for El Yunque: Testing Educational Theory through Educational Practice* (with Neil Schwartz, Ph.D.). (unfunded - 1997)

Environmental Protection Agency, *EarthNet: Project Investigations In Environmental Science* (with Roy Pea, Ph.D.). (unfunded - 1995)

NSF Instructional Materials Development, *EarthNet: Project Investigations in Geoscience* (with Roy Pea, Ph.D.). (unfunded - 1994)

## RESEARCH EXPERIENCE

	<b>WHEELING JESUIT UNIVERSITY</b>	WHEELING, WV
1997-present	<i>Senior Educational Researcher for Center for Educational Technologies (CET)</i>	
1995-1996	<i>Educational Researcher for CET</i> <ul style="list-style-type: none"><li>• Responsible for designing and implementing research on CET multimedia products</li><li>• Coordinator of CET's research opportunities programs</li></ul> <i>Accomplishments:</i> <ul style="list-style-type: none"><li>• Principal Investigator for <i>Astronomy Village: Investigating the Solar System</i> and <i>Journey to El Yunque</i>.</li><li>• Successfully mentored senior faculty, graduate students, and undergraduate students to conduct award-winning research on educational technology.</li></ul>	
	<b>NORTHWESTERN UNIVERSITY</b>	EVANSTON, IL
1992-1995	<i>Research Assistant for the CoVis Project</i> <ul style="list-style-type: none"><li>• Responsible for designing and implementing research on student learning and assessment in high technology, project-based learning environments</li><li>• As teacher liaison, responsible for in-service support of CoVis teachers' transition to project-based teaching</li></ul> <i>Accomplishments:</i> <ul style="list-style-type: none"><li>• Investigated the connection between project activity and student learning outcomes</li><li>• School-based research on project curricula and assessment has provided a framework for the development of project-based curriculum and assessment systems for high school science</li><li>• Conducted monthly in-service CoVis teacher forums and a two-week summer CoVis workshop during the CoVis teachers' first-year transition to project-based pedagogy</li></ul>	
1990-1992	<i>Research Assistant at the Institute for the Learning Sciences</i> <ul style="list-style-type: none"><li>• Responsible for the design and evaluation of <i>Road Trip</i>, a multimedia computer program for 4th grade geography</li></ul> <i>Accomplishments:</i>	

- The design of the *Road Trip* program is based on national geography reform efforts
- Formative evaluation of *Road Trip* provided valuable feedback on enhancements that might ease students' initial cognitive overload in working with maps

## PROFESSIONAL EXPERIENCE

2002-present	<b>THE LEARNING PARTNERSHIP</b> <i>President</i> <ul style="list-style-type: none"><li>• Responsible for all facets of the business</li></ul> <i>Accomplishments</i> <ul style="list-style-type: none"><li>• Successfully awarded and completed Phase I SBIR grant to develop prototype environmental science assessment</li><li>• Awarded a contract with Georgia Tech to evaluate middle project-based science curriculum</li></ul>	WHEELING, WV
1990-1992	<b>INVIEW</b> <i>Director of Research and Development</i> <ul style="list-style-type: none"><li>• Responsible for the design of the <i>Field Trip</i> series, elementary science multimedia software published through Sunburst Communications</li><li>• Managed programming staff for both Macintosh and Apple II products</li></ul> <i>Accomplishments:</i> <ul style="list-style-type: none"><li>• Field Trip to the Rainforest was voted software of the year in 1991</li><li>• The Field Trip series remains a top seller at Sunburst.</li></ul>	PALO ALTO, CA
1988-1990	<b>ADDISON-WESLEY PUBLISHING COMPANY</b> <i>Software Systems Assistant Editor</i> <ul style="list-style-type: none"><li>• Managed software development of K-12 mathematics, science and social science software</li></ul> <i>Accomplishments:</i> <ul style="list-style-type: none"><li>• Created multimedia curriculum and assessment resources used by Addison-Wesley's national teacher market.</li></ul>	MENLO PARK, CA

## TEACHING EXPERIENCE

1996-present	<b>NASA CLASSROOM OF THE FUTURE</b> <i>Taught astronomy using Astronomy Village with eight high-school and middle-school classes.</i> <i>Taught ecology using Journey to El Yunque with two middle-school classes.</i>	WHEELING, WV
1997-present	<b>WHEELING JESUIT UNIVERSITY</b> <i>Analytical Methods for Business Decision-Making (graduate), Marketing of Technology (graduate), Cognition and Instruction (graduate), Educational Psychology (undergraduate), Teacher Research (graduate), Statistics (undergraduate), Information Systems (undergraduate)</i>	WHEELING, WV
1993	<b>NEW TRIER HIGH SCHOOL</b> <i>Substitute Teacher for a senior-level environmental science class during a maternity leave of one of the CoVis teachers.</i>	WILMETTE, IL
1992	<b>NORTHWESTERN UNIVERSITY</b> <i>Teaching Assistant for a course in child development and a course in philosophy of education</i>	EVANSTON, IL
1986-1988	<b>CHIARAVALLE MONTESSORI SCHOOL</b> <i>Assistant Teacher for a combined first and second grade classroom</i>	EVANSTON, IL

## PUBLICATIONS

2003	Howard, B. C., & McGee, S. (submitted). The Influence of Metacognitive Self-Regulation and Multiple Measures of Ability on Problem Solving. <i>Learning and Individual Differences</i> .
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- Schwartz, N.H., Andersen, C., Howard, B., & **McGee**, S.M. (submitted). The influence of metacognition on children's memory of information in a hypermedia environment. *Applied Cognitive Psychology*.
- Shin, N., Jonassen, H. D., & **McGee**, S. (2003). Predictors of Well-Structured and Ill-Structured Problem Solving in an Astronomy Simulation. *Journal of Research in Science Teaching*, 40(1), 6-33
- 2002 Dimitrov, D.M., **McGee**, S., & Howard, B.C. (2002). Changes in Students' Science Ability Produced by Multimedia Learning Environments: Application of the Linear Logistic Model for Change. *School Science and Mathematics Journal*, 102(1), 15-22.
- 2001 Howard, B. C., **McGee**, S., Hong, N. S., & Shia, R. (2001). The Triarchic Theory of Intelligence and Computer-Based Inquiry Learning. *Educational Technology Research & Development (ETR&D)*, 49(4), 51-71.
- Schwartz, N. H., & **McGee**, S. M. (2001). Theoretical context and issues of instructional design: Learning and problem solving in web environments. In M. E. Robertson & R. Gerber (Eds.), *Children's ways of knowing: Learning through partnerships* (pp. 128-143). Camberwell, Victoria, Australia. Australian Council for Educational Research.
- 2000 Howard, B. C., **McGee**, S., Schwartz, N., & Purcell, S. (2000). The experience of constructivism: Transforming teacher epistemology. *Journal of Research on Computing in Education*, 32(4), 455-465.
- 1998 **McGee**, S. & Howard, B C. (1998). Evaluating multimedia in the context of use. *Journal of Universal Computer Science*, 4(3), 273-291.
- McGee**, S., Hong, N., Shia, R. & Purcell, S. (1998). *Results of a survey assessing the impact of Astronomy Village: Investigating the Universe*. [Online Technical Report] <http://www.cet.edu/research/papers.html>.
- 1997 Gasiorowski, J., **McGee**, S., & Rosen, B. (1996-97). Evaluation of the shuttle/Mir online research experience. [Online Technical Report] <http://www.cet.edu/research/smores/main.html>.
- 1993 Kass, A., & **McGee**, S. (1993). *The Road Trip project: Learning geography through simulated travel* (Technical Report No. 42). The Institute for the Learning Sciences.

## PRESENTATIONS

- 2003 **McGee**, S, Dimitrov, D. M., Kirby, J. & Croft, S. K. (2003, April). Three-year study of *Astronomy Village* implementation. Paper presented at the annual meeting of the American Educational Research Association, Chicago.
- McGee**, S., Edelson, D. C., & Schwille, K. (2003, April). Development of a cognitive assessment model in environmental science. Paper presented at the annual meeting of the American Educational Research Association, Chicago.
- McGee**, S. (2003, April). Mapping authentic science inquiry to standards-based assessment. Keynote address at Toward a National Research Agenda for Improving the Intelligence of Assessment through Technology symposium at the annual meeting of the American Educational Research Association, Chicago.
- Kirby, J., **McGee**, S., Norris, K. & Blaney, L. (2003, April). Effectiveness of Integrating Strategies and Technology in Education Practice (InSTEP™) on Constructivist Uses of Technology. Paper presented at the annual meeting of the American Educational Research Association, Chicago.
- Shin, N, **McGee**, S, & Scott, L. (2003, April). Web-based design guidelines for promoting scientific inquiry learning: Virtual Design Center. Paper presented at the annual meeting of the American Educational Research Association, Chicago.

- 2002 Shin, N., & **McGee**, S. (2002, November). The influence of an inquiry-based multimedia learning environment on scientific problem-solving skills among ninth-grade students across gender differences. Paper presented at the Association of Educational Computing Technology Conference, Dallas, TX.
- McGee**, S., Dimitrov, D.M., Kirby, J., & Croft, S.K. (2002, April). Using design experiments to investigate long-term program success. Paper to be presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- McGee**, S., Kirby, J., & Croft, S.K. (2002, April). Activity summaries as a classroom assessment tool. Paper to be presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Shia, R. , **McGee**, S., Scott, L., Kirby, J., Norris, K., & Blaney, L. (2002, April). Guiding professional development through constructivist uses of technology. Paper to be presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- 2001 **McGee**, S., Howard, B.C., Dimitrov, D.M., Hong, N.S., & Shia, R. (2001, April). Addressing the complexities of evaluating interdisciplinary multimedia learning environments. Presented at the annual meeting of the American Educational Research Association, Seattle, WA.
- McGee**, S., Corriss, D., & Shia, R. (2001, April). Using simulations to improve cognitive reasoning. Presented at the annual meeting of the American Educational Research Association, Seattle, WA.
- Hong, N.S., **McGee**, S., & Howard, B.C. (2001, April). Essential components for solving various problems in multimedia learning environments. Presented at the annual meeting of the American Educational Research Association, Seattle, WA.
- Howard, B.C., **McGee**, S., Shia, R., & Hong, N.S. (2001, April). The influence of metacognitive self-regulation, aptitude, and achievement on problem solving. Presented at the annual meeting of the American Educational Research Association, Seattle, WA.
- Howard, B.C., **McGee**, S., Shia, R., & Hong, N.S. (2001, April). The Influence of Metacognitive Self-Regulation, Aptitude, and Achievement on Problem Solving. Presented at the annual meeting of the American Educational Research Association, Seattle, WA.
- 2000 **McGee**, S., Panizzon, D., Pegg, J. & Howard, B. C. (2000, June). Integrating Inquiry-Based Multimedia Learning Outcomes into Educational Accountability Systems. Paper presented at International Conference on the Learning Sciences, Ann Arbor, MI.
- Howard, B. C., **McGee**, S., Schwartz, N., & Purcell, S. (2000, April). Constructivism and teacher epistemology: Training teachers in classroom computer use. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Howard, B. C. & **McGee**, S. (2000, April). Metacognitive Self Regulation and Problem Solving: Expanding the Theory Base through Factor Analysis. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Howard, B. C., **McGee**, S., Hong, N. S. & Shia, R. (2000, April) Student Self-Regulated Learning and Scientific Problem Solving in Computer Based Learning Environments. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Hong, N. S., **McGee**, S., & Howard, B. C. (2000, April). The Effect of Multimedia Learning Environments on Well- and Ill-Structured Problem-Solving Skills. Paper to be presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- 1999 **McGee**, S. (1999, August). NASA Classroom of the Future Research and Development. Invited address at the University of New England, Armidale, Australia.
- McGee**, S. (1999, August). NASA Classroom of the Future Research and Development. Invited address at the Queensland University of Technology, Brisbane, Australia.

- McGee, S. & Howard, B. C.** (1999, June). Using Design Experiments As a Means of Guiding Software Development. Paper presented at ED-MEDIA: International Conference on Educational Multimedia, Seattle, WA.
- McGee, S. & Howard, B. C.** (1999, April). Generalizing Activity Structures from High School to Middle School Science. In S. McGee (Chair), *Changing the game: Activity structures for science education reform*. Symposium submitted to the annual meeting of the American Educational Research Association, Montreal, Canada.
- Howard, B. C., **McGee, S.**, Hong, N., & Shia, R. (1999, April). Sternberg's Multiple Intelligences: Accommodating Students' Abilities Through Advanced Technology . Paper presented at the annual meeting of the American Educational Research Association in Montreal, Canada.
- McGee, S. & Sturm, N.** (1999, April). Evaluating Student Learning in the Challenger Center Space Flight Simulator Informal Learning Environment. Paper presented at the annual meeting of the American Educational Research Association in Montreal, Canada.
- 1998 **McGee, S., Howard, B. C., & Hong, N.** (1998, April). Cognitive apprenticeship, activity structures, and scientific inquiry. In S. McGee (Chair), *Changing the game: Activity structures for reforming education*. Symposium conducted at the annual meeting of the American Educational Research Association, San Diego, CA..
- McGee, S., Howard, B. C., & Hong, N.** (1998, April). The evolution of academic tasks in a design experiment of scientific inquiry. Paper presented at the annual meeting of the American Educational Research Association. San Diego, CA.
- Schwartz, N., Andersen, C., Howard, B. C., Hong, N., & **McGee, S** (1998, April). The influence of configurational knowledge on children's problem-solving performance in a hypermedia environment. Paper presented at the annual meeting of the American Educational Research Association. San Diego, CA.
- 1997 **McGee, S.** (1997, June). Evaluation of a multimedia program designed to engage students in scientific inquiry. *Proceedings of the World Conference on Educational Multimedia and Hypermedia* (June 14-19). Charlottesville, VA: Association for the Advancement of Computing in Education.
- McGee, S.** (1997, April). Participatory design in the BioBLAST Project. Panel on *Implementing Science Education Reform: What Does It Look Like in the Classroom?* National Science Teachers Association Annual Meeting (April 3-6). New Orleans, LA.
- 1996 Blurton, C. & **McGee, S.** (1996, May). Mission to Planet Earth: On-line earth systems science course. Presented at IGARSS '96. Lincoln, NE.
- McGee, S.** (1996, April). Should the federal government connect all K-12 schools to the Internet? Invited address at the Society, Ethics, and Technology conference. Wheeling, WV.
- McGee, S.** (1996, April). Developing a science project question. Presented at the 1996 meeting of the American Educational Research Association. New York, NY.
- McGee, S. & Pompea, S.** (1996, March). Investigating the universe with NASA's new multimedia program - The Astronomy Village. Presented at the Society for Information Technology and Teacher Education conference. Phoenix, AZ.
- 1995 **McGee, S.** (1995, April). Cultivating genuine questions in geoscience. Presented at the 1995 meeting of the American Educational Research Association. San Francisco, CA.
- Gomez, L., & **McGee, S.** (1995, April). What shapes student activity in artifact-oriented learning environments? Presented at the 1995 meeting of the American Educational Research Association. San Francisco, CA.
- McGee, S.** (1995, January). Where is your data? A look at student projects in geoscience. In *Proceedings of the Fourth Symposium on Education at the 75th Annual Meeting of the American Meteorological Society*. Dallas, TX: American Meteorological Society.

- 1994 D'Amico, L., Gomez, L., & **McGee, S.** (1994, May). A case study of student and teacher use of projects in a technology-supported distributed learning environment. Paper presented at the Educational Testing Service Conference on Natural Language Processing Techniques and Technology in Assessment and Education. Princeton, NJ.
- Pea, R. D., Edelson, D., Gomez, L., D'Amico, L., Fishman, B., Gordin, D., **McGee, S.**, O'Neill, K., & Polman, J. (1994, April). The CoVis collaboratory: High school science learning supported by a broadband educational network with scientific visualization, videoconferencing, and collaborative computing. Presented at the 1994 meeting of the American Educational Research Association. New Orleans, LA.
- McGee, S.**, & Carlson, P. (1994, April). Modeling the greenhouse effect at the high school level. Presented at the 1994 meeting of the American Educational Research Association. New Orleans, LA.
- McGee, S.** (1994, April). What is a project? Presented at the 1994 meeting of the American Educational Research Association. New Orleans, LA.
- McGee, S.** (1994, March). *The CoVis Project*. Invited address at the Technology in Learning and Teaching Conference, Evanston, IL.
- McGee, S.**, & Pea, R. D. (1994, January). Cyclone in the classroom: Bringing the atmospheric science community into the high school. In *Proceedings of the Third Symposium on Education at the 74th Annual Meeting of the American Meteorological Society*, (pp. 23-26). Nashville, TN: American Meteorological Society.
- 1993 Kass, A., & **McGee, S.** (1993, April). Road Trip: Learning geography through simulated travel. Presented at the 1993 meeting of the American Educational Research Association. Atlanta, GA.
- McGee, S.**, & Beckwith, R. (1993, April). The value of traveling aimlessly. Presented at the 1993 meeting of the American Educational Research Association. Atlanta, GA.

## PEER REVIEW

2000-present Journal of Research in Science Teaching  
1998-present American Educational Research Association Annual Meeting  
1998-present National Science Foundation—Elementary, Secondary, and Informal Education  
1999 Journal of Contemporary Educational Psychology  
1997-1998 National Educational Computing Conference  
1997-1998 Educational Multimedia Conference (AACE)

## COMMITTEES

Member, Wheeling Jesuit University Institutional Review Board (1996 - 2001)  
Chair, Saint Michael's Parish School Technology Committee (1995 - present)

## PROFESSIONAL ORGANIZATIONS

American Educational Research Association, Division C (AERA)  
AERA, Education in Science and Technology SIG  
AERA, Advanced Technologies for Learning SIG  
AERA, Computer Applications in Education SIG  
John Dewey Society